

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method for decoding channel data comprising:  
receiving a packet of encoded data; and  
decoding the encoded packet using a look-up table that stores information approximating output of an algorithmic decoding process.
2. (Original) The method of claim 1 including performing joint quantization of the data packet before decoding.
3. (Original) The method of claim 1 wherein data in the packet is encoded by turbo coding.
4. (Currently amended) The method of claim 3 wherein decoding includes processing the data in the packet using a parallel concatenated turbo decoder.
5. (Currently amended) The method of claim 1 including decoding the data in the packet using a table that stores information approximating output of a soft-input soft-output algorithmic decoding process, a soft-input hard-output algorithmic decoding process, a hard-input soft-output algorithmic decoding process, or a hard-input hard-output algorithmic decoding process.

6. (Currently amended) A method for decoding channel-encoded data comprising:
  - (a) receiving encoded symbols;
  - (b) compressing the encoded symbols to obtain compressed symbols;
  - (c) decoding the compressed symbols using a first look-up table that stores information approximating output of an algorithmic decoding process to obtain decoded symbols;
  - (d) arithmetically combining the compressed symbols with the decoded symbols to obtain a first result; and
  - (e) decompressing the first result to obtain a decompressed first result.
7. (Currently amended) The method of claim 6 including:
  - (f) interleaving the decompressed first result to obtain an interleaved first result;
  - (g) compressing the interleaved first result to obtain a compressed, interleaved first result;
  - (h) decoding the compressed, interleaved first result using a second look-up table that stores information approximating output of an algorithmic decoding process to obtain a decoded first result;
  - (i) arithmetically combining the decoded first result with the compressed, interleaved first result to obtain a second result;
  - (j) decompressing the second result to obtain a decompressed second result; and
  - (k) de-interleaving the decompressed second result.
8. (Currently amended) The method of claim 7 including:  
repeating (b) through (k) until a predetermined criterion ~~criteria~~ is satisfied; and  
determining information bits corresponding to the ~~received~~ encoded symbols received in (a).

9. (Currently amended) An apparatus for decoding channel-encoded data comprising:

a memory storing a look-up table with information approximating output of an algorithmic decoding process; and

a processor configured to use the look-up table to decode data packets encoded by convolutional coding.

10. (Currently amended) The apparatus of claim 9 wherein the look-up table stores information approximating a soft-input soft-output algorithmic decoding process, a soft-input hard-output algorithmic decoding process, a hard-input soft-output algorithmic decoding process, or a hard-input hard-output algorithmic decoding process.

11. (Currently amended) The apparatus of claim 10 including a joint quantization module for converting soft symbols in ~~the~~ a data packet into soft multi-symbols prior to the processor's decoding the data packets using the look-up table.

12. (Currently amended) The apparatus of claim 10 wherein the processor is configured to decode ~~the~~ a data packet by turbo decoding.

13. (Currently amended) An apparatus for decoding channel-encoded data comprising:

memory storing a first look-up table with information approximating output of an algorithmic decoding process; and

a processor configured to

(a) compress a packet of received encoded symbols to obtain compressed symbols;

(b) decode the compressed symbols using the first look-up table to obtain decoded symbols;

(c) arithmetically combine the compressed symbols with the decoded symbols to obtain a first result; and

(d) decompress the first result to obtain a decompressed first result.

14. (Currently amended) The apparatus of claim 13 wherein the memory stores a second look-up table with information approximating output of an algorithmic decoding process and wherein the processor is configured to:

(e) interleave the decompressed first result to obtain an interleaved first result;

(f) compress the interleaved first result to obtain a compressed, interleaved first result;

(g) decode the compressed, interleaved first result using the second look-up table to obtain a decoded first result;

(h) arithmetically combine the decoded first result with the compressed, interleaved first result to obtain a second result;

(i) decompress the second result to obtain a decompressed second result; and

(j) de-interleave the decompressed second result.

15. (Currently amended) The apparatus of claim 14 wherein the processor is configured to:

repeat (a) through (j) until a predetermined criterion ~~criteria~~ is satisfied; and determine information bits corresponding to the encoded symbols.

16. (Currently amended) An article comprising a computer-readable medium that stores computer-executable instructions for causing a computer system, in response to receiving [an] channel-encoded data packet, to use a look-up table that approximates output of an algorithmic decoding process to decode the channel-encoded data packet.

17. (Currently amended) The article of claim 16 including instructions for causing the computer system to perform joint quantization before using the look-up table to decode the channel-encoded data packet.

18. (Currently amended) The article of claim 16 wherein data in the channel-encoded data packet to be decoded was encoded by turbo coding.

19. (Currently amended) An article comprising a computer-readable medium that stores computer-executable instructions for causing a computer system, in response to receiving a channel-encoded data packet, to:

(a) compress a packet of received encoded symbols to obtain compressed symbols;

(b) decode the compressed symbols using a first look-up table approximating output of an algorithmic decoding process to obtain decoded symbols;

(c) arithmetically combine the compressed symbols with the decoded symbols to obtain a first result; and

(d) decompress the first result to obtain a decompressed first result.

20. (Currently amended) The article of claim 19 including instructions for causing the computer system to:

(e) interleave the decompressed first result to obtain an interleaved first result;

(f) compress the interleaved first result to obtain a compressed, interleaved first result;

(g) decode the compressed, interleaved first result using a second look-up table approximating output of an algorithmic decoding process to obtain a decoded first result;

(h) arithmetically combine the decoded first result with the compressed, interleaved first result to obtain a second result;

(i) decompress the second result; and

(j) de-interleave the decompressed second result.

21. (Currently amended) The article of claim 20 including instructions for causing the computer system to:

repeat (a) through (j) until a predetermined criterion ~~criteria~~ is satisfied; and  
determine information bits corresponding to the encoded symbols.

22. (Currently amended) The article of claim ~~16~~ 19 including instructions for causing the computer system to decode the compressed symbols using a first look-up table approximating output of a soft-input soft-output algorithmic decoding process, a soft-input hard-output algorithmic decoding process, a hard-input soft-output algorithmic decoding process, or a hard-input hard-output algorithmic decoding process.

23-28. (Withdrawn)